

REMARKS

Claims 1-5, 7-9 and 11-20 stand rejected. Claims 14-16 have been amended. New Claims 21 and 22 have been added.

This application was subject to a Request for Continued Examination under 37 CFR 1.114. Applicant notes that the Final Rejection included §102/103 rejections utilizing references to Strebkov et al. (US Patent No. 4,151,005); Hashimoto (US Patent No. 4,963,196) and Aguilera et al. (US Patent No. 6,107,564). The current Action does not reference any of these prior art references (or previous positions) utilized in the Final Rejection. Accordingly, Applicant assumes that these positions have been overcome.

Claim Rejections – 35 USC §112

Applicant appreciates the helpful suggestions of the Examiner contained in paragraphs 6, 7 and 8 of the current Action. Applicant has amended claims 15 and 16 to render them more definite.

With regard to the §112 rejection of claims 11, 12, 13 and 20, Applicant provides the following remarks.

First, Applicant directs the attention of the Examiner to the following excerpt taken from the specification at page 11, line 28 – page 12, line 2.

“Figure 4 thus represents additional desirable frequencies that can be applied which do not correspond exactly to f_0 , but are close enough to the frequency f_0 to achieve a desired effect. In particular, for example, those frequencies between and including the frequencies within the range of f_1 and f_2 would be most desirable. Note that f_1 and f_2 correspond to those frequencies above and below the resonant frequency f_0 wherein f_1 , and f_2 correspond to about one half the maximum amplitude, a_{max} , of the curve “B”. However, in practice, depending on the particular semiconductor material utilized, some frequencies slightly beyond those represented by the range of frequencies between f_1 , and f_2 may also be desirable.”

Each of claims 11, 12, 13, 20 and newly added claim 22 currently recite the following language (note: “_____” has been inserted to represent specific frequencies recited in each claim):

“comprise frequencies other than those frequencies which are distributed symmetrically about said at least one _____ frequency and which comprise those frequencies which correspond to less than half of the maximum amplitude associated with said at least one _____ frequency”.

Accordingly, it should be clear that the referenced language in each of claims 11, 12, 13, 20 and 22 means that the claimed frequencies are limited to those frequencies roughly above and below the resonant frequency, wherein the frequencies f_1 and f_2 correspond to “about one half the maximum amplitude, a_{\max} , of the curve “B””. In other words, the claimed frequencies are cut off or limited at the points 1, 2 shown on Figure 4. Accordingly, Applicant respectfully submits that the language of the aforementioned claims is definite in view of the above-quoted portion of the instant specification.

Accordingly, Applicant respectfully requests withdrawal of this §112 rejection with regard to claims 11, 12, 13 and 20.

Claim Rejections – 35 USC §102/103

Claims 1-5, 7-9, 11-14, 17, 18 and 20 stand rejected under 35 USC §102(b) as anticipated by, or in the alternative under 35 USC §103(a) as obvious over Samulon et al. (US Patent No. 3,076,861). First, Applicant notes that some of the specific positions stated in Paragraph 11 of the Action correspond to previous claim language (i.e., language not currently pending). However, Applicant understands the position taken in the Action and provides the following comments.

First, Applicant notes that MPEP §2131 provides:

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). ... “The identical invention must be shown in as complete detail as is contained in the ... claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim.”

Contrary to the assertion in the Action that the aforementioned claims are anticipated by Samulon, they are not. Applicant provides the following remarks regarding Claims 1 and 14:

a) Claim 1: Claim 1 includes the following language:

“whereby said at least one means restricts approximately only destructively interfering frequencies of light within the photoreactive portion of the solar spectrum, which do not correspond to: (1) said at least one primary frequency, (2) said at least one harmonic frequency and (3) said at least one heterodyne frequency from becoming incident upon the solar cell photovoltaic substrate.”

Samulon is silent regarding these claimed features. Thus, the §102 rejection of Claim 12 is unsupported by the art and should be withdrawn.

b) Claim 14: Claim 14 includes the following language:

“determining at least one set of destructively interfering energies occurring within at least a portion of the photoreactive portion of the solar spectrum, said at least one set of destructively interfering energies not corresponding to at least one primary frequency, at least one harmonic frequency and at least one heterodyne frequency associated with said at least one primary band gap”.

Samulon is silent regarding these claimed features. Thus, the §102 rejection of Claim 14 is unsupported by the art and should be withdrawn.

With regard to the claim rejections under §103 over Samulon, Applicant provides the following comments. As noted above, portions of Paragraph 11 of the Action contain statements regarding a previous set of pending claims. Applicants are directing their comments primarily to those comments contained in Paragraph 15 of the Action. Specifically, Paragraph 15 focuses on, apparently, certain language of Claim 1, wherein the current Action states:

The limitation “means restricts approximately only destructively interfering frequencies of light” does not require the means to restrict every single destructively interfering frequency or not allow the filter to filter some desirable ones. Therefore although Samulon does not mention the term destructively interfering frequencies, the filter element and method accomplishes the same tasks as applicant and thus meets the claims.

Applicant respectfully traverses the position taken in the Action. In particular, with regard to Claim 1, there is no suggestion in Samulon at all of “...said at least one means restricts approximately only destructively interfering frequencies of light within the photoreactive portion...” rather, Samulon discloses the following:

at column 1, lines 54-56:

It is therefore an object of this invention to preserve from overheating solar radiation converters of the kind employing semiconductive cells.

at column 1, lines 65-72:

The filter coating is of such materials and layer thicknesses as to transmit substantially only those wavelengths of incident solar radiation which are useful for conversion by the solar cell into electrical power. The other

wavelengths of solar radiation, which are ordinarily dissipated in the form of heat in the solar cell without producing any useful electrical power, are reflected from the cell.

at column 2, lines 6-9:

Fig. 3 is a graph showing the transmission characteristics of a filter according to the invention in relation to the energy spectrum of solar radiation and to the spectral response of a silicon solar cell;

at column 2, lines 61-72:

The function of the filter element 20 is to transmit to the cell 12 only those wave-lengths of the total incident solar radiation (exemplified by rays 24) to which the cell 12 is responsive. The filter element 20 reflects from the cell 12 other wavelengths lying outside of the useful band of wavelengths. In the absence of the filter element 22, these other wavelengths would be absorbed by the cell 12 and would cause the cell 12 to overheat, thereby reducing the cell's efficiency.

at column 3, lines 20-23:

The resultant filter is a selective reflector of a great portion of the wavelengths outside of the range (from about .5 to about 1.0 micron) to which the cell 12 is responsive.

and at column 3, lines 52-69:

As shown in Curve A, the filter element 22 has less than 10% transmission for all short wavelength radiation up to just short of about .5 micron. At about .5 micron the transmission increases rather abruptly to 50% and at slightly beyond .5 micron it levels off to at least about 95% transmission. The transmission is maintained at about 95% up to about 1.0 micron, where it again falls off to relatively low values. Thus it is seen that the filter element 22 has little or no transmissivity to the shorter wavelengths (below .5 micron) wherein a substantial portion of the energy content of the solar radiation resides. However, it has high transmissivity to the longer wavelengths (between .5 and 1.0 micron) where the response of the cell 12 is the greatest. Maximum response of the cell is shown (in Curve C) to lie about .8 micron. The filter element 22 thus limits the reception by the cell 12 to that band of wavelengths for which the cell 12 has maximum response.

It is clear from the disclosure of Samulon that there is no disclosure or suggestion of the desirability of the language contained in Claim 1 (excerpted above). Likewise, there is no disclosure or suggestion in Samulon of the language of Claim 14 (excerpted above). Further, the Action did not provide a prior art reference with regard to Claim 15 and Applicant assumes that since the §112 rejection has been overcome, Claim 15 should also be patentable over any references of record.

Claims 1-5, 7-9 and 11-20 stand rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1-30 of U.S. Patent No. 7,161,083. Applicant has previously submitted a signed Terminal Disclaimer (i.e., along with the previous response). Applicant believes the obviousness-type double patenting rejection has already been overcome and should be withdrawn.

Accordingly, Applicant respectfully submits that all of the § 112, § 102 and § 103 rejections have been overcome.

Additionally, the obviousness-type double patenting rejection is moot by the previous filing of the signed Terminal Disclaimer. Accordingly, Applicant respectfully requests a Notice of Allowance directed to claims 1-5, 7-9 and 11-22.

Should the Examiner desire to discuss this Amendment, the Examiner is invited to telephone Applicant's undersigned representative at the number listed below.

Respectfully submitted,

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